



ELECTRICAL CURRENTS

Office of the Chief Electrical Inspector

Ron Fuller, Chief Electrical Inspector

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● **Enforcement of the Electrical Compliance Laws and Rules**

In stakeholder meetings conducted around the state, we hear requests from our legitimate industry partners to help them compete on a “level playing field” by increasing our compliance enforcement. The department is responding in several ways.

- Random compliance stops and jobsites without electrical permits are now included in the agency performance agreement and measured on a monthly scorecard.
- Citations will be automatically generated for trainees and electrical contractors that turn in Affidavits of Experience for working hours when the trainee had an expired training certificate during the timeframe when hours were requested.
- Warning letters will be issued to administrators and firms that receive 3 citations in a year.
- Licensing/certification suspension and revocations will be issued to electrical contractors and administrators that receive 6 citations in 2 years or 9 citations in 3 years.

● **On-line Renewal of Contractor Licenses and Administrator/Electrician Certificates**

The Electrical Program is finalizing the implementation of another convenient tool for electrical contractors, electricians, and administrators. In March 2002, you will have the ability to renew all electrical certificates and licenses on-line in any of our offices. In April 2002, you will have that same ability at your home or workplace.

When the final roll-out is made in April, you will be able to pay for your renewal by credit card and have a receipt (i.e. temporary certificate/license) printed immediately. Your renewal will be completed electronically and you will have your permanent certificate/license in a much shorter timeframe than the current manual processing method.

● **EMT Compression Type Couplings and Connectors**

NEC 348-10 covers the installation of couplings and connectors for Electrical Metallic Tubing (EMT) and requires: *“Couplings and connectors used with tubing shall be made up tight. Where burried in masonry or concrete, they shall be concretetight type. Where installed in wet locations, they shall be of the raintight type.”*

NEC 110-3(b) states: *“Listed and labeled equipment shall be installed in accordance with any instructions included in the listing or labeling.”*

Not all compression type couplings and connectors are listed as being suitable for raintight and/or concrete tight applications. Some may be listed “concretetight” but are not suitable for use in wet locations because they are not listed “raintight”. Some are not listed for either application.

Installers must always check to be sure the couplings and connectors they are using are installed in compliance with the product listing.

● **More Information On Changes In Electrician and Administrator Examinations**

The department has compiled several thousand electrical exam questions, many donated by electrical trainers and electrical training programs. These questions are being categorized and pooled into our exam database. When *LaserGrade* delivers the examination to a candidate on demand, the questions and sequence of answers have been randomized. It is unlikely that the same exam will be created twice. The results are given the candidate immediately upon completion of the exam. The minimum passing score is 70% correct on any exam section. If the candidate scores from 65% to 69% they may retest in one day, scores from 55% to 64% may retest in one week, and scores less than 55% must wait one month to retest.

The new examinations are all **open book**. Candidates may use any copyrighted reference materials and a silent, nonprinting, nonprogrammable calculator. *LaserGrade* certified proctors monitor all exams.

Fees are based on the length of time reserved for the examination. The cost of a one-hour exam/part is \$35 with \$10 added for each additional hour. For retests, the fee is based only on the sections to be retested. The journeyman exam is 3 hours and specialty electrician examinations are either 1 or 2 hours. A complete administrator exam consists of 2 to 4 sections taking from 2 to 6 hours total depending on the type of exam. Most administrator sections take 1 hour. *LaserGrade's* fee structure will result in substantially lower exam fees for most of our exam candidates.

● Submersible Well Pump Replacement

The Washington Administrative Code (WAC) 296-46A-900 (11) states: *“As required by chapter 19.28 RCW or this chapter, an electrical work permit is required for the installation, alteration, or maintenance of electrical systems except for: Plug-in appliances, travel trailers, or like-in-kind replacement of a: Circuit breaker, fuse, lamp, snap switch, receptacle outlet, heating element, lighting fixture ballast with an exact same ballast, contactor, relay, timer, starter, similar control component, or motor.”*

For the purpose of this section, the department considers submersible pump motor leads as part of the motor assembly where they extend from the motor to the top of the well casing. The department does not require a permit for the replacement of the motor assembly if the voltage and amperage characteristics are similar to the motor assembly being replaced.

The replacement of branch circuit or grounding conductors supplying the top of the well casing is not exempted from permits/inspection. Proper wiring methods and grounding requirements must be verified by inspection.

For additional clarification please consider the following.

- If an existing submersible pump without an equipment grounding conductor is replaced with a new pump having provisions for grounding the motor, an equipment grounding conductor is required to supply the top of the well casing.
 - If an equipment grounding conductor exists at the top of the well casing, to ground the casing to the motor supply system, the replacement pump can be installed without a permit or inspection.
 - If an equipment grounding conductor does not exist at the top of the well casing, to ground the casing to the motor supply system, an equipment grounding conductor must be installed and a permit and inspection is required.
- Installations that require **any** new or replacement wiring outside the well casing require a permit and inspection.
- All wiring changes must be made by: the owner or a properly licensed electrical contractor.
- Removal or placement of a submersible pump motor does not require a permit, licensing, or certification provided the installer only places the pump motor and runs the motor leads no further than the top of the well casing leaving the connection to the branch circuit to owners or licensed and certified installers.

● Code Question of the Month

This month's Code Question: The maximum allowable voltage drop for a fire pump at the line terminals of the controller, under motor starting conditions is? A) FPN, only a recommendation. B) 3%. C) 5%. D) 15%.

Last month's Code Question: Disregarding any exceptions, cable markings on Power-Limited Fire Alarm (PLFA) cables shall comply with which of the following? A.) No voltage marking required, B) No voltage marking permitted, C) 300V marking, D) 600V marking. **The answer is: B).** [NEC 760-71(i)]